Shenzhen Lenodell Technology Co., Ltd.

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Model: R13

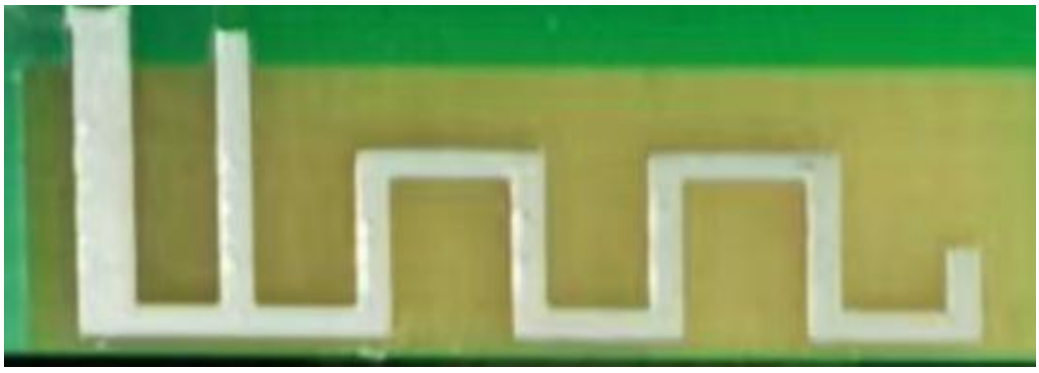
BT Antenna Test Report

1. Antenna Introduction

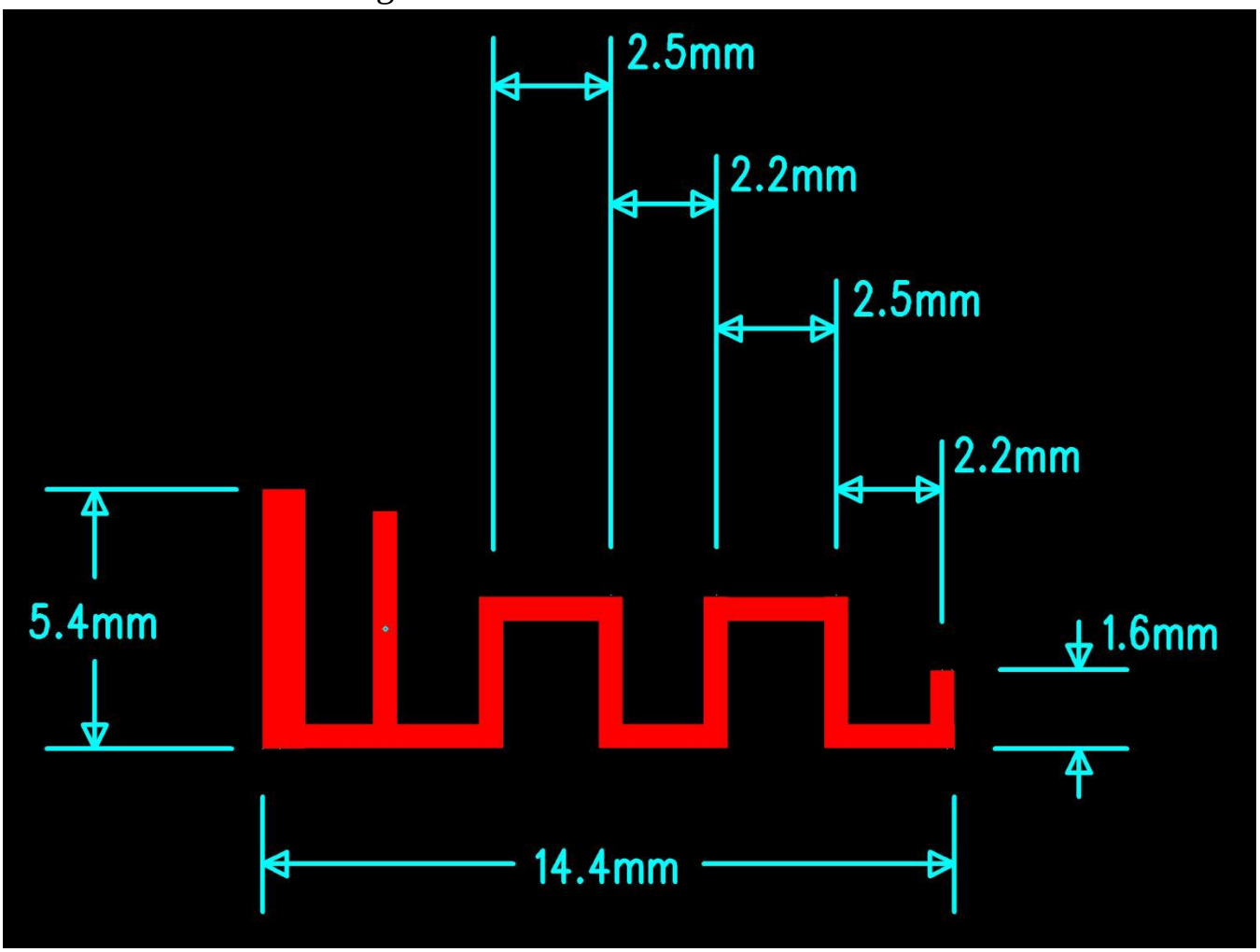
The Bluetooth antenna is directly mounted on the PCB board using a copper foil and tin spraying process. The copper foil thickness is 10Z, and the board material is FR-4 with a thickness of 1.6mm.

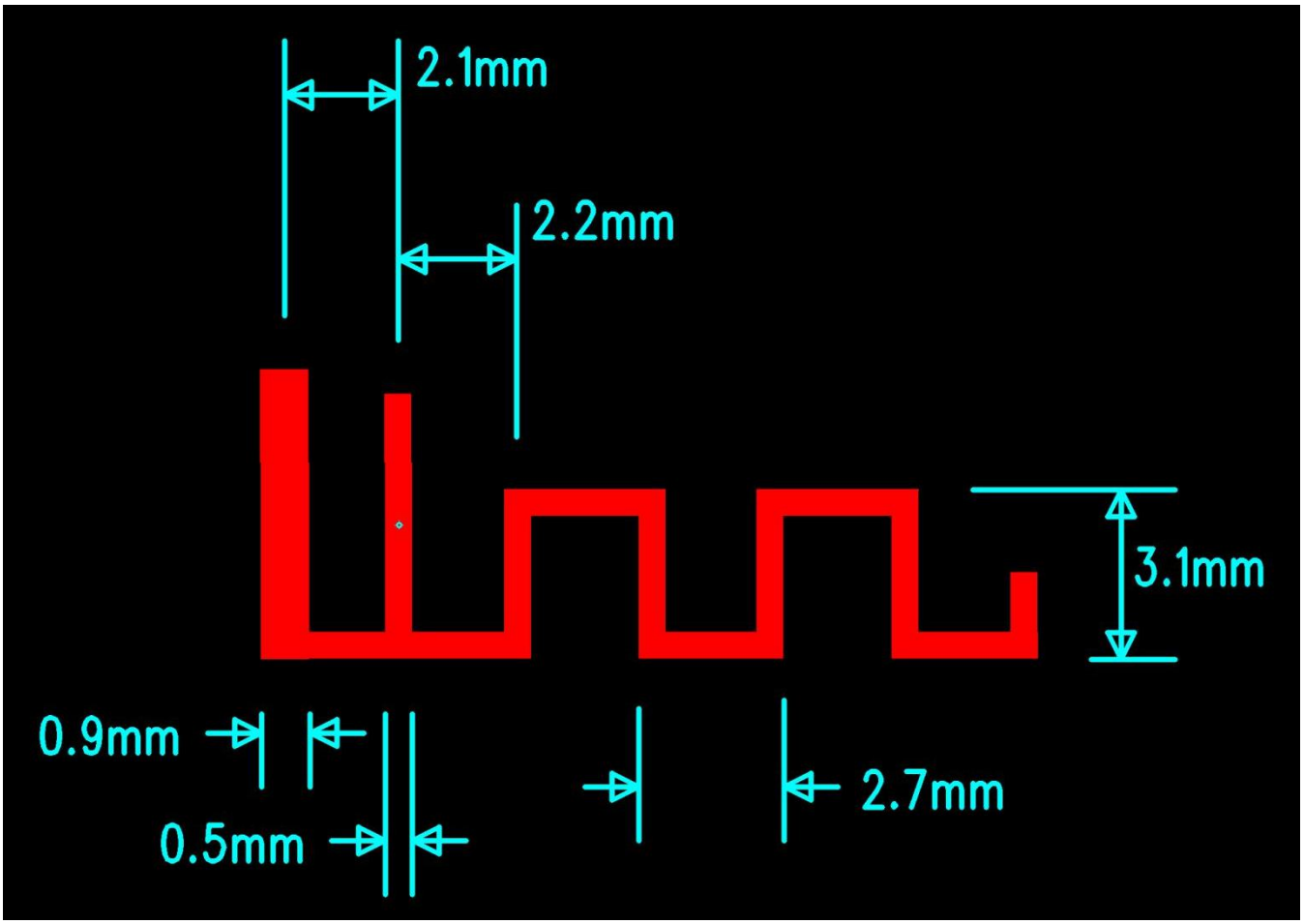
2. Antenna Appearance

1. Physical Picture



2. Dimensional Drawing 14.5mm * 5.4mm





3. Antenna Parameters

The Bluetooth working frequency is 2402-2480MHz

The Antenna parameters as following table

BT PCB Antenna	
Frequency (MHz)	2402 ~ 2500 MHz
VSWR	≤ 1.92
Impedance	50 Ohm Nominal
Return Loss	-10 dB Max
Radiation	Omni-directional
Gain (Peak)	0.5 dBi
Polarization	Linear, Vertical
Admitted Power	2W
Connector	Tin

4.、Antenna Gain Test Report

Spectrum Detector: PK Test Date : June 8, 2013

Test By: Andy Temperature : 28℃

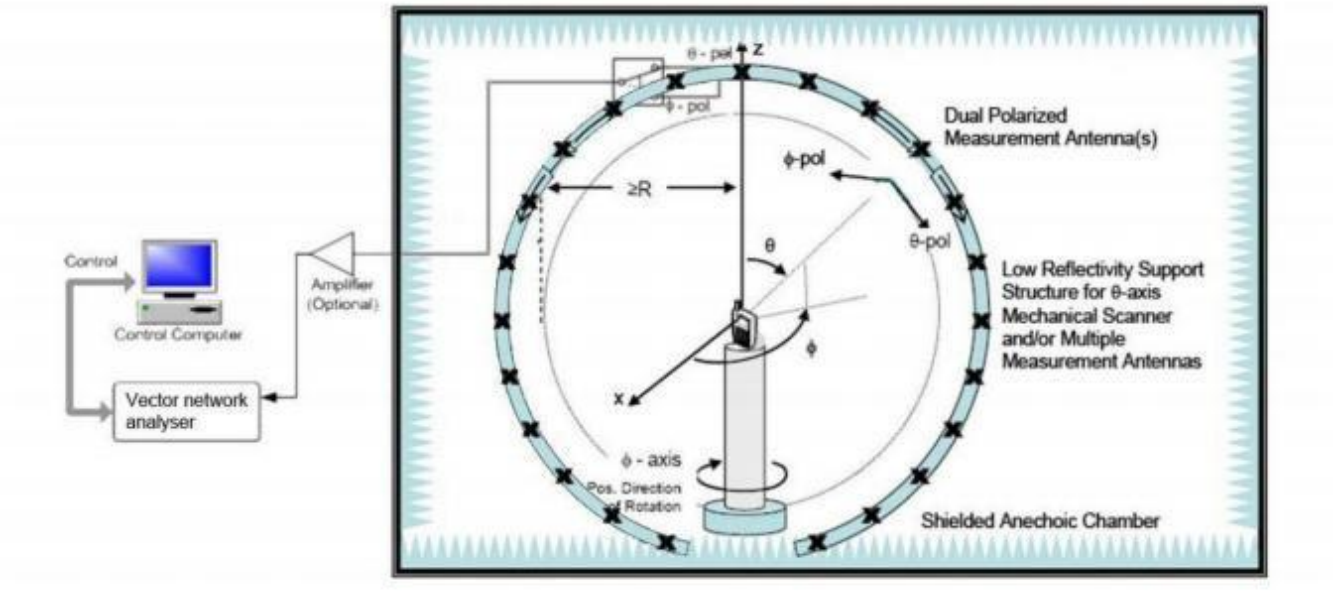
Test Result: PASS Humidity : 55 %

Modulation: GFSK

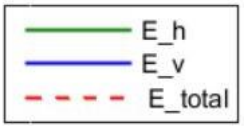
Maximum Gain:

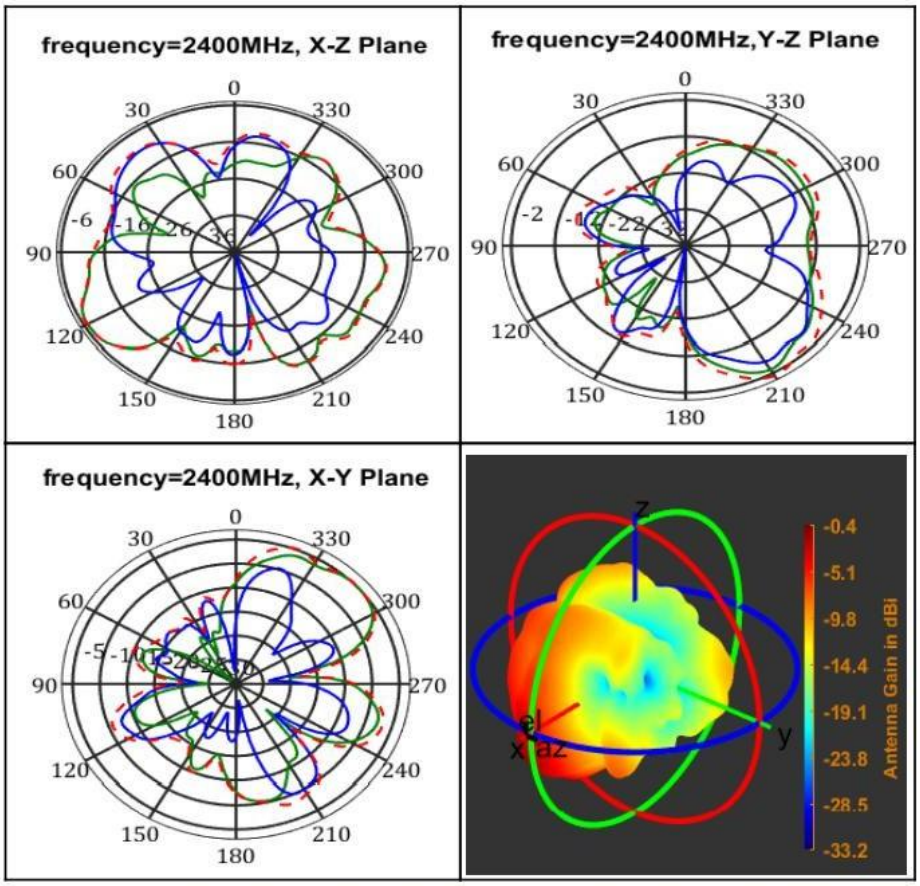
Frequency (MHz)	Maximum Gain (dBi)
2400MHz	-0.41
2410MHz	-0.18
2420MHz	0.34
2430MHz	0.50
2440MHz	0.38
2450MHz	-0.01
2460MHz	-0.06
2470MHz	-0.42
2480MHz	-0.74
2490MHz	-0.85
2500MHz	-1.13

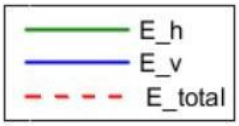
5.、Test Setup:

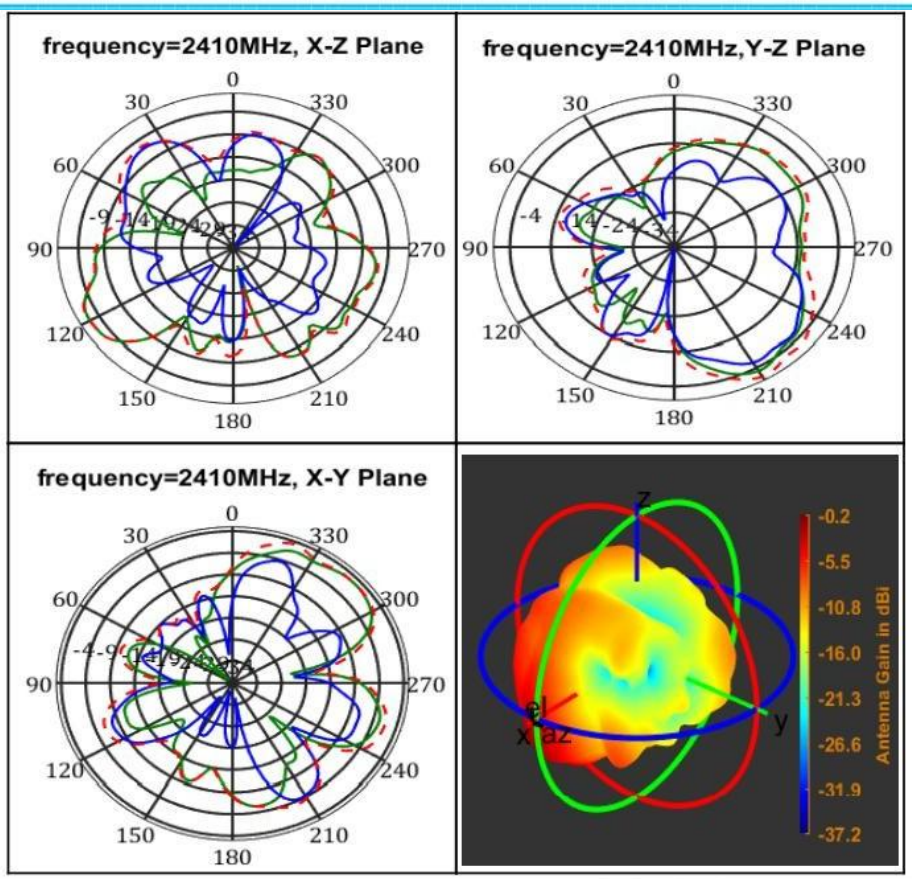


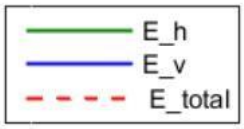
6. 2D Radiation Pattern

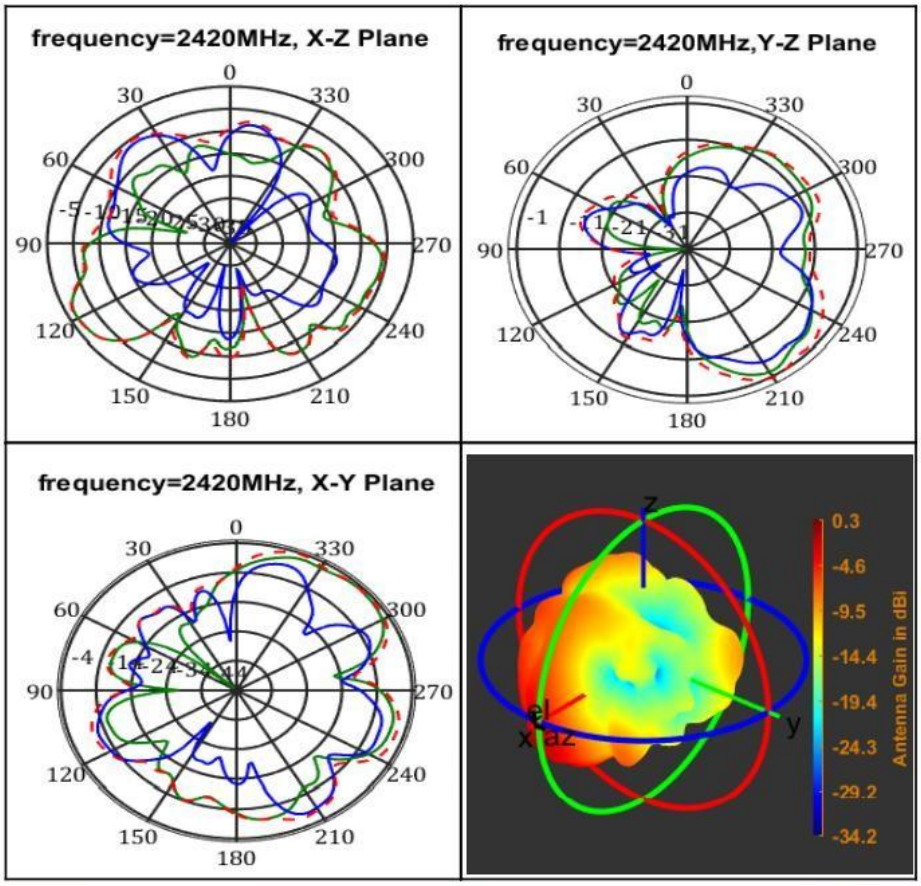


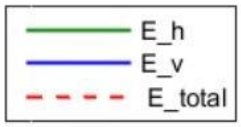


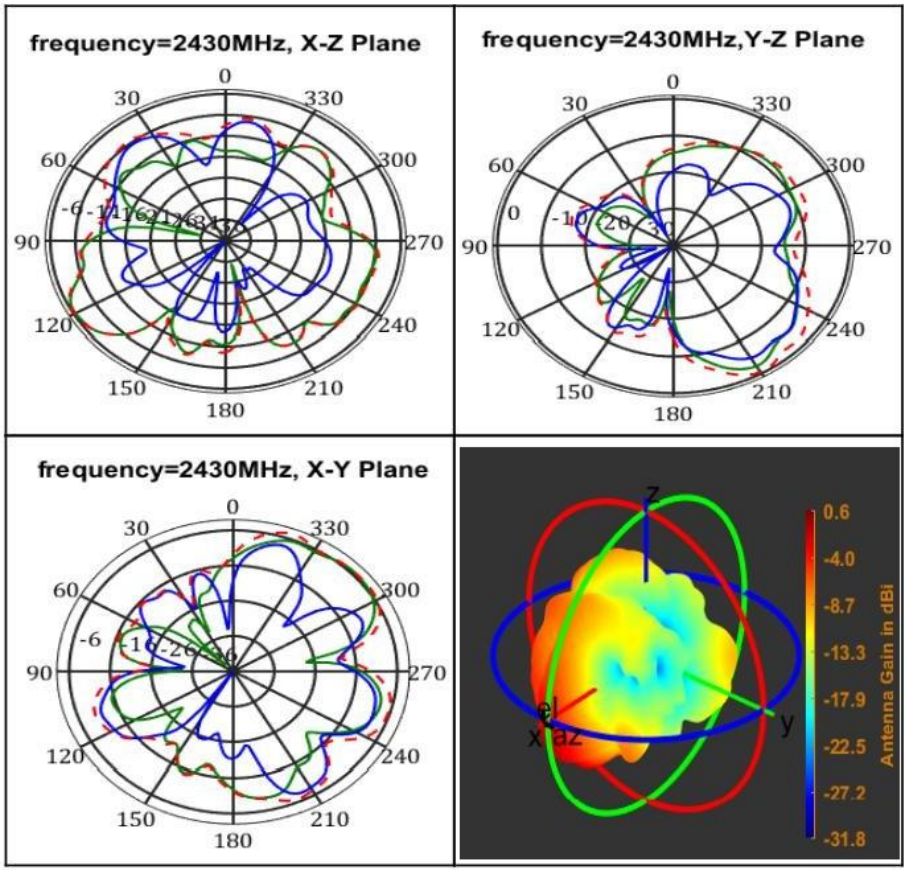





E_h
E_v
E_total


frequency=2420MHz, X-Z Plane
frequency=2420MHz,Y-Z Plane
frequency=2420MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
z
y
x
el
az
0.3
-4.6
-9.5
-14.4
-19.4
-24.3
-29.2
-34.2
Antenna Gain in dBi


E_h
E_v
E_total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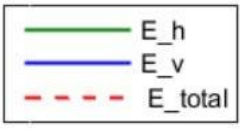
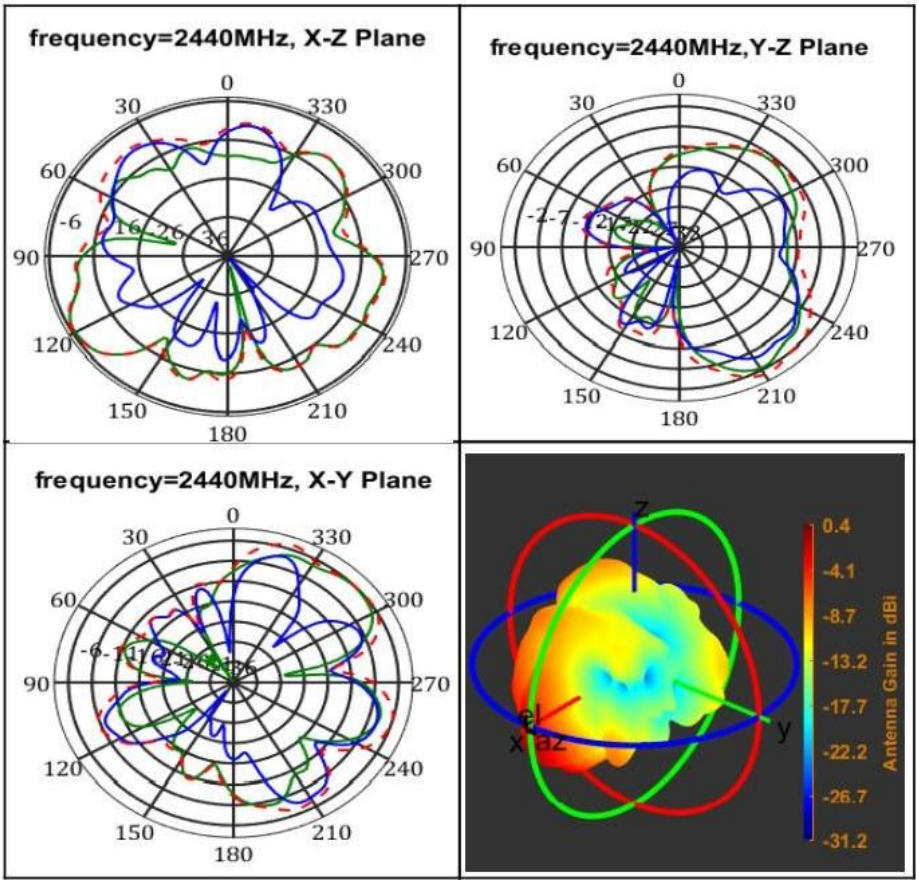
frequency=2430MHz,Y-Z Plane
frequency=2430MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
z
y
x
el
az
0.6
-4.0
-8.7
-13.3
-17.9
-22.5
-27.2
-31.8
Antenna Gain in dBi


E_h
E_v
E_total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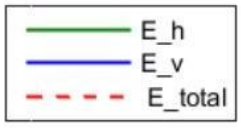
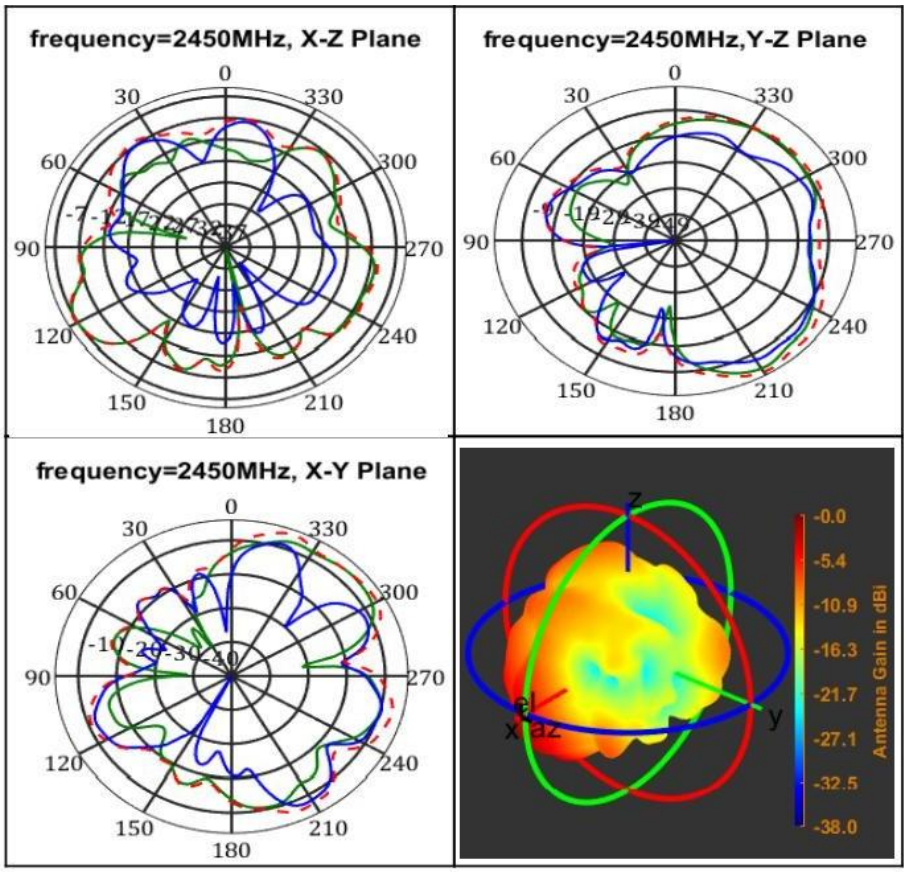
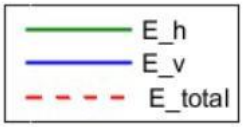
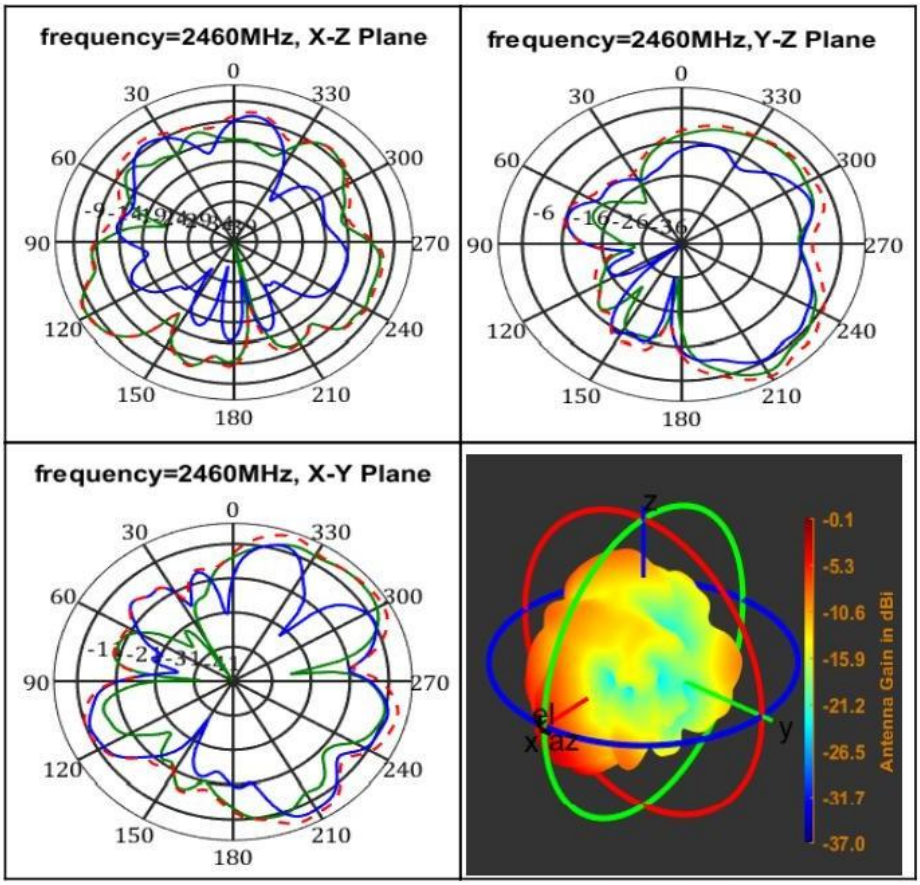
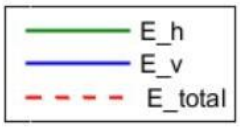
frequency=2440MHz,Y-Z Plane
frequency=2440MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
0.4
-4.1
-8.7
-13.2
-17.7
-22.2
-26.7
-31.2
Antenna Gain in dBi
z
y
el
az

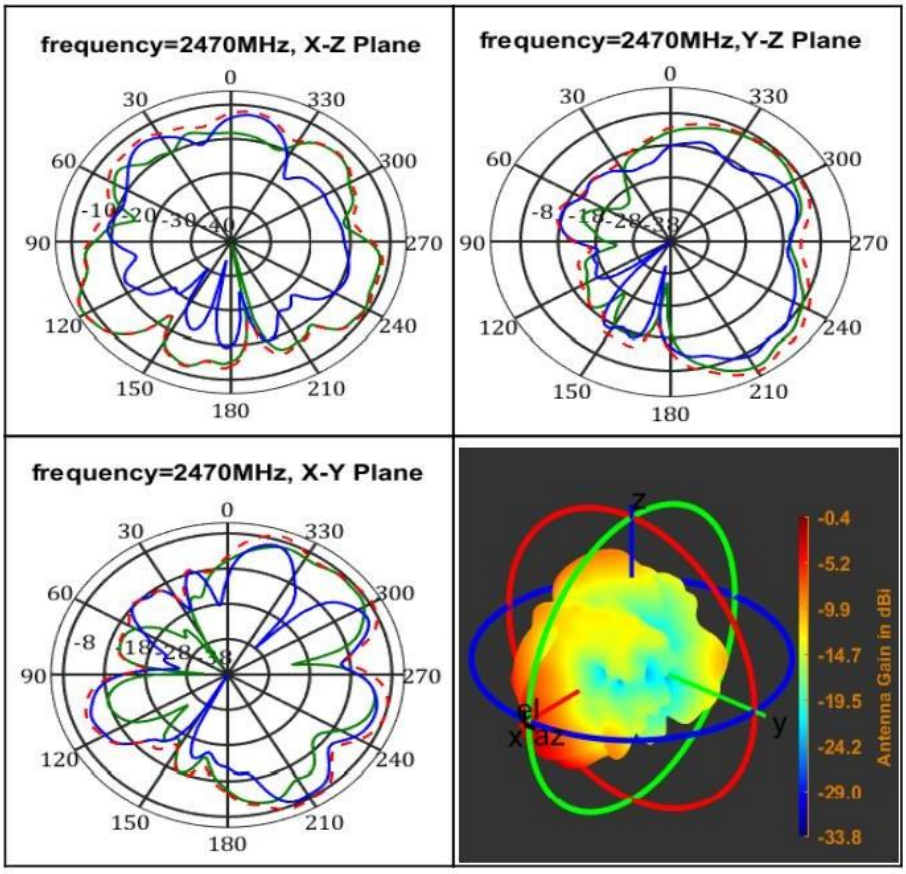

E_h
E_v
E_total

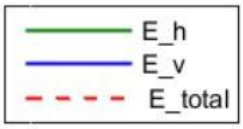

frequency=2450MHz, X-Z Plane
frequency=2450MHz,Y-Z Plane
frequency=2450MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
-0.0
-5.4
-10.9
-16.3
-21.7
-27.1
-32.5
-38.0
Antenna Gain in dBi
z
y
el
az

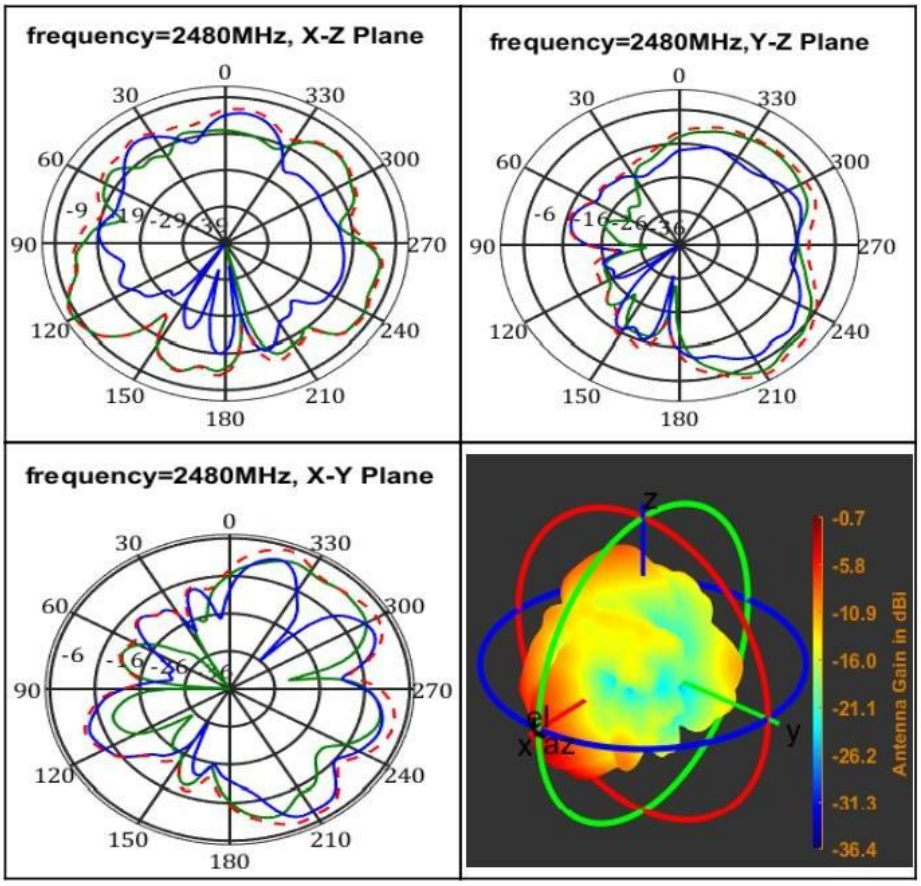

E_h
E_v
E_total


frequency=2460MHz, X-Z Plane
frequency=2460MHz,Y-Z Plane
frequency=2460MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
z
x
y
el
az
-0.1
-5.3
-10.6
-15.9
-21.2
-26.5
-31.7
-37.0
Antenna Gain in dBi


E_h
E_v
E_total


frequency=2470MHz, X-Z Plane
frequency=2470MHz,Y-Z Plane
frequency=2470MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
z
x
y
el
az
-0.4
-5.2
-9.9
-14.7
-19.5
-24.2
-29.0
-33.8
Antenna Gain in dBi


E_h
E_v
E_total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frequency=2480MHz,Y-Z Plane
frequency=2480MHz, X-Y Plane
0
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330
60
300
90
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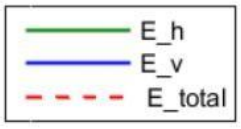
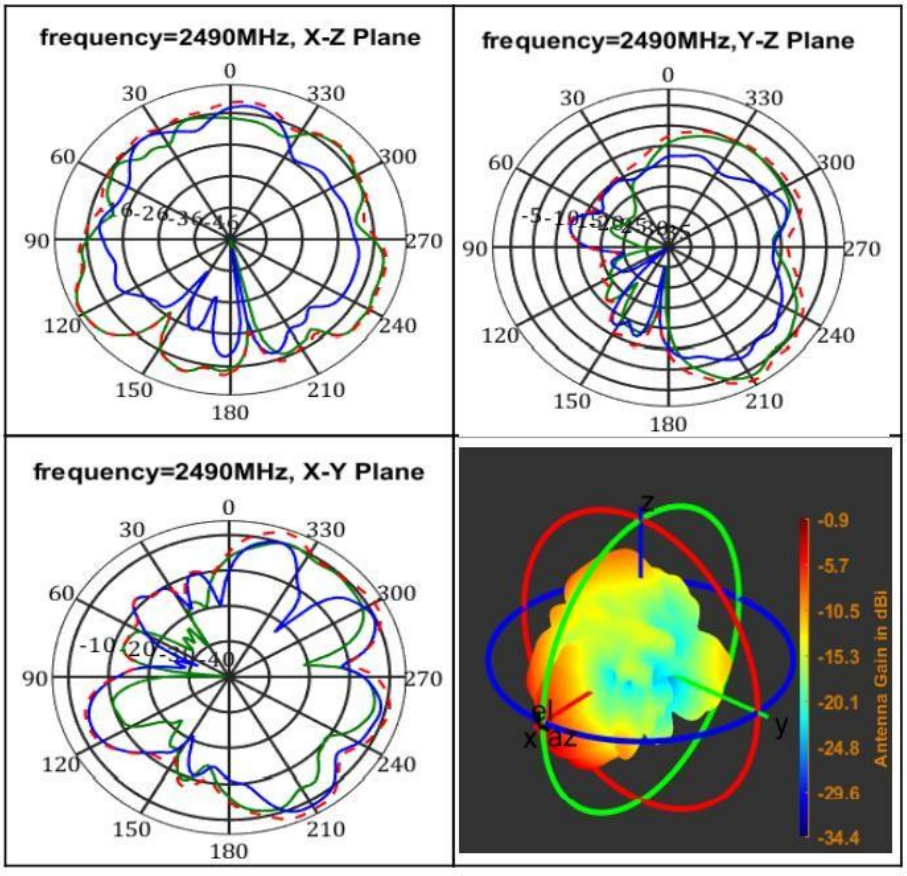
240
150
210
180
-9
-19
-29
-39
-6
-16
-26
-36
z
y
x
el
az
-0.7
-5.8
-10.9
-16.0
-21.1
-26.2
-31.3
-36.4
Antenna Gain in dBi


E_h
E_v
E_total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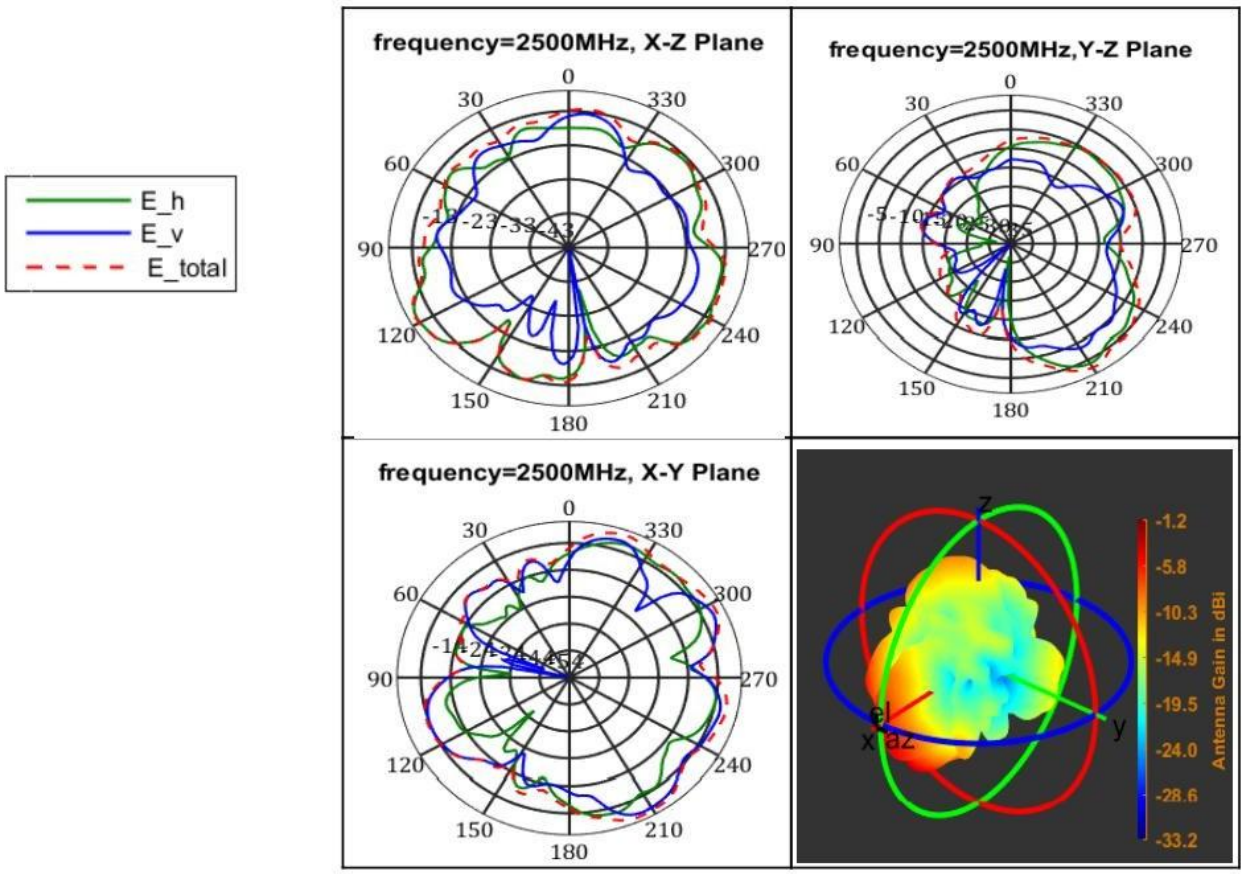
frequency=2490MHz,Y-Z Plane
frequency=2490MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
-10
-20
-30
-40
z
y
x
el
az
-0.9
-5.7
-10.5
-15.3
-20.1
-24.8
-29.6
-34.4
Antenna Gain in dBi


E_h
E_v
E_total
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frequency=2500MHz,Y-Z Plane
frequency=2500MHz, X-Y Plane
0
30
330
60
300
90
270
120
240
150
210
180
z
y
x
el
az
-1.2
-5.8
-10.3
-14.9
-19.5
-24.0
-28.6
-33.2
Antenna Gain in dBi